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three kinds or classes: 1st. "Those composed of the immediate products of the breaking up of eruptive rocks." 2d. "Rocks built up of the more or less rounded or angular debris of previously existing sedimentary or eruptive rocks." 3d. "Rocks composed of mineral substance extracted from aqueous solution by crystallization, precipitation, or the action of organic life." Strata of the first class are often identical in aspect and chemical composition, but their irregular sedimentary structure is dissolved upon submitting them to the microscopical test. Very fine, compact rocks may be distinguished from crystalline rocks by the same means. "Roofing-slate, however, has a definite arrangement of the particles in lines, which constitute the lines of weakness or the cleavage of the slate." This arrangement, however, is explained by the effects of pressure, applied at right-angles to the structure itself, causing an elongation of some, together with a sliding movement of others of the particles.

Under the third head we notice that the clays of Staffordshire, when altered by contact with basaltic dykes, present a structure identical with common stoneware made from the same clays, and show "no change in mineral or chemical composition, beyond the expulsion of the water always contained in such beds." The foliated schists, quartzites, etc., show the contours of the original sand-grains, and, as Sorby has pointed out, the existence of ripple-drift and wave-structure.



ANSWERS TO CORRESPONDENTS.

THE MISTLETOE.—I believe it is the common opinion of naturalists that the common Mistletoe of this Southern country steals the *elaborated sap* from the stalk which supports it. I think it can be proved that it *does not*, but that it draws its portion of *crude sap* and elaborates it, returning a portion to the tree on which it grows. I would be very glad to know if I am correct in reference to the *common opinion of naturalists*, and will oblige you to inform me.—J. M.

It is not the common opinion that the Mistletoe of the Southern States, or, in fact, any parasite with green foliage, draws *merely* elaborated sap from its host; otherwise why the green leaves? We know that the office of green leaves is to elaborate sap, and therefore in those plants (*Orobanchaceæ*, *Monotropa*, etc.) which depend wholly upon their hosts for elaborated nourishment, we find no green leaves. We should be glad of the record of any observations, which have been carefully made, with the view of proving experimentally that the Mistletoe does not take elaborated sap alone (for it very probably takes *some*) from its host, as they could not fail to be interesting.—H. M.

THE MASTODON IN KANSAS.—I send you a photograph and description of a vertebra of some species of the *Mammalia* for determination. The whole skeleton is said to be imbedded in the mud in one of our

streams, where there is some danger of *savants* losing their scalps. One rib has been detached and ground up into powder by the Indians for medicine. — JOHN D. PARKER, *Topeka, Kansas*.

We referred your letter and photograph to Professor J. Wyman, who writes:—

“The photograph is unluckily taken from an *oblique* point of view, which I believe people will never learn to be a bad one. If the view had been *full* front, or full side, or full anything, it would have been better than this. I have come to the conclusion that it is either the last lumbar, or first sacral vertebra of a Mastodon. The great compression of the spinal canal is in favor of its being sacral.”

ARE BEES INJURIOUS TO FRUIT. — In answer to the question by J. J. Gould (Wenham, Mass.), whether bees are in any way injurious to fruit, or lessen its quality or quantity, I would reply that all the evidence given by botanists and zoölogists who have specially studied this subject shows that bees improve the quality and tend to increase the quantity of fruit. They aid in the fertilization of flowers, thus preventing the occurrence of sterile flowers, and by more thoroughly fertilizing flowers already perfect, render the production of sound and well-developed fruit more sure. Many botanists think if it were not for bees and other insects, *many plants would not fruit at all*. This whole subject of the great office bees and other insects perform in the fertilization of plants has been fully discussed in the May, July, and October numbers of the AMERICAN NATURALIST, and by Professor Asa Gray in the AMERICAN AGRICULTURIST, beginning in May, 1866.

It is alleged that bees do injury in some way by extracting the honey from flowers. What is the use in nature of honey? The best observers will tell you it is secreted by the plant for the very purpose of attracting bees to the flower, otherwise it is of no use to the flower or fruit.

If all the bees were to be destroyed, I for one, if a farmer, would prefer to go into some other business. This prejudice against bees seems to us to have no foundation. Known facts prove the contrary. Farmers know too well the injury noxious insects do; it is more difficult to estimate the good done by hosts of beneficial insects. I believe that every intelligent bee-keeper and naturalist will assent to the truth of the above remarks. — A. S. P.

R. H., Nichols, N. Y. — The hymenopterous insect from the sugar-maple tree is the *Tremex columba*. It bores, while in the larva state, into the trunk of the maple and oak. The beetles are *Copris anaglypticus* Say, *Cicindela sexguttata*, *Ancylocheira 6-plagiata* and *A. fasciata*. The fly is allied to *Tabanus*, the House-fly, and has a powerful bite.

E. B., Wheeling, West Virginia. — The microscopic form found in Peruvian Guano appears to be one of the Polycystinæ. The only authority that we know of is Ehrenberg's Microgeologie. Specific, and even generic names, are almost useless in this group of Rhizopods. — C. S.

W. W. G., Ann Arbor, Wis.—The little insects called snow-fleas are probably the *Podura nivicola* of Dr. Fitch. They are found in winter at the foot of trees, under the bark of which they live, and also about manure heaps and in cellars.

The *Heleochara communis*, a homopterous insect, allied in form to the Cicada, or seventeen-year locust, produces the frog-spittle seen in mid-summer on grass. The larva sucks in the sap, which passes through the body and forms a frothy mass concealing the insect.

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

ESSEX INSTITUTE, Salem.—*First Field Meeting at Haverhill*, on Tuesday, July 2, 1867, postponed from the preceding Thursday, on account of the weather. Haverhill, located on the north bank of the Merrimac, is a thriving and busy place, noted for its extensive manufacture of shoes. It abounds in interesting historic lore; for a period of seventy years was one of the most exposed of the frontier towns, and many harrowing tales of Indian barbarity is among its well-authenticated legends. The principal point of attraction to the naturalist is "Kenoza Lake," formerly known as the "Great Pond," a lovely sheet of water, embosomed among the hills, covering an area of about three hundred acres. During their rambles in its vicinity the party was rewarded in finding many interesting specimens in the various departments.

The afternoon session was held in the North Congregational Church, and was called to order at 2.30 o'clock, *Vice-president Fowler* in the chair. *Dr. George B. Loring*, of Salem, made a few eloquent remarks on the prospects of the year, and the occasion which had brought them together. *F. W. Putnam*, of Salem, gave a description of the habits of the common Plant-louse. *Dr. James R. Nichols*, of Haverhill, remarked that chemical science had recently discovered an effectual destroyer of plant insects, a new substance called Carbohc acid, which is eliminated from coal tar, and made farther comments on this subject. *Dr. N.* also spoke of the collections and library of the Institute, and alluded in very appropriate terms to the recent donation of Mr. George Peabody, for the promotion of science and useful knowledge in this county. *Edward S. Morse*, of Salem, drew a comparison of the studies of the naturalist near the sea with those made in the interior, and alluded to the families of animals found in these respective localities which are worthy of study. *Alpheus Hyatt*, of Salem, spoke of the geological features of this section of the county. *Rev. Dr. Seeley*, of Haverhill; *Hon. Allen W. Dodge*, of Hamilton; *Professor A. Crosby*, of Salem; *Dr. J. Spofford*, of Groveland; *Hon. Warren Ordway*, of Bradford, and others, made interesting remarks.